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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,861	05/05/2005	Sandrine Touchais	28944/40152	7889

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EXAMINER	
PERILLA, JASON M	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/533,861	TOUCHAIS ET AL.	
	Examiner	Art Unit	
	JASON M. PERILLA	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-16 are pending in the instant application.

Response to Arguments/Amendments

2. The Applicant's remarks, filed March 4, 2009, have been fully considered.

In view of the Applicant's remarks to the claims, a new grounds of rejection is set forth below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 8-11, 15, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bauder et al (U.S. Pat. No. 7203247; "Bauder-247" – previously cited) in view of Bauder et al (U.S. Pat. No. 6853246; "Bauder-246"), Schrader et al (U.S. Pat. No. 7016431; "Schrader" - previously cited) and McFarland et al (U.S. Pub. No. 2002/0186796; "McFarland" – previously cited).

Regarding claim 1, Bauder-247 discloses, according to figure 2, a method of training a device (290, 225) for linearizing a radiofrequency amplifier (260) which is included within a radiofrequency transmitter (205) of a first equipment (200) of a radiocommunication system (abstract), which transmitter is adapted for transmitting bursts, each burst comprising symbols belonging to a determined alphabet of symbols ("QAM" modulation symbols; col. 4, line 16), the method comprising the steps consisting

of: a) generating a linearization training sequence (col. 5, lines 15-21, col. 6, lines 23-40; table 1) comprising a determined number N of symbols (see table 1), where N is a determined integer; b) transmitting the linearization training sequence by means of the transmitter in at least certain of the bursts transmitted by the latter (i.e. during “training mode”; col. 5, lines 15-20); and c) comparing the linearization training sequence transmitted (returned on a path from the "coupler") with the linearization training sequence generated (figure 2, “I,Q”) so as to teach said linearization device (col. 7, line 28 - col. 9, line 25). In Bauder-247's embodiment, when the transmitter is in “training mode”, it “transmits” one of the predetermined training sequences disclosed in table 1. It uses a coupled version of the transmission of such training sequence, in conjunction with training circuit 290, to update the lookup table 225 which reverses the non-linear properties of the power amplifier 260. Bauder-247 discloses that the linearization training sequence used during a “training” mode and is not transmitted because the transmission antenna (267) is disconnected from the transmit chain (col. 5, lines 15-21). However, Bauder-246 teaches, in strictly analogous art, that the transmission of a linearization training sequence during normal operation of a transmitter can benefit the transmitter by permitting it to update predistortion coefficients while in operation (col. 7, lines 10-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the training method of Bauder-247 could be modified to actually transmit the training sequence as taught by Bauder-246 because it would permit the updating of predistortion coefficients while the transmitter is in operation.

Further regarding claim 1, Bauder-247 in view of Bauder-246 discloses transmitting bursts of QAM symbols but does not explicitly disclose that the bursts are determined according to a frame structure. However, Schrader evidences, in strictly analogous art, the notoriously known use of frames (fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the transmitter of Bauder-247 in view of Bauder-246 may utilize a frame structure of QAM symbols as suggested by Schrader because the use of frames is well known in the art as a exemplary structure of organizing data transmission.

Further regarding claim 1, Bauder-247 in view of Bauder-246 and Schrader does not explicitly disclose the second equipment or receiver. However, for the utility of Bauder-247's transmitter 200, a receiver to receive its transmission is considered implied or inherent. Bauder-247 does not disclose that the linearization training sequence is included in a sequence of symbols that is further designed to allow the adjusting of at least one parameter of a radiofrequency receiver of a second equipment of the radiocommunication system with which said first equipment communicates. However, the transmission of a sequence of symbols designed to allow the dynamic control of the gain of a variable-gain amplifier of a “second equipment” or receiver is well known in the art. McFarland teaches that a sequence of symbols or "short training symbol sequence" is utilized to “adjust the gain of a gain control amplifier” (¶ 0011) of a receiver (fig. 2). McFarland’s amplifier (fig. 2, ref. 214) is a variable gain amplifier as it takes control from a gain controller (fig. 2, ref. 220). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made

that, in the method of Bauder-247 in view of Bauder-246 and Schrader, Bauder-247's "linearization training sequence" could contain both a linearization sequence as well as a automatic gain sequence (i.e. both sequences separately present and concatenated) as taught by McFarland's because gain control is advantageous in a receiver's RF amplifier as is well known for providing advantages in the art.

Regarding claim 2, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 2 as applied above. Further, Bauder-247 in view of Schrader and McFarland disclose the remaining limitations of the claim as applied to claim 1 above.

Regarding claim 3, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 1 as applied above. Further, Bauder-247 discloses that the linearization training sequence may comprise 10, 20, 30, or 40 "chips" (table 1). Bauder-247 does not disclose what relationship exists between such training sequences and the remaining burst(s) being transmitted. However, the linearization training sequence is considered to occupy only a part of the burst in which it is transmitted because it is not the only information being transmitted (i.e. "the source signal for transmission" is data transmitted; col. 5, line 55) by Bauder-247's transmitter. That is, the claim imparts no particular limitation defining a "burst". Therefore, as broadly as claimed, Bauder-247's transmission of a training sequence is only a "part" of a wider "burst" comprising the training sequence any actual information to be transmitted.

Regarding claim 4, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 3 as applied above. Further, the remaining limitations of

the claim as disclosed as applied to claim 3 above. As broadly as claimed and depending upon the amount of actual data to be transmitted, Bauder-247's training sequence may constitute “around” 5% of the total information transmitted. One skilled in the art is aware that the training sequence is overhead which reduces the overall transmission rate of the transmitter. Therefore, one skilled in the art would have found it obvious to reduce the duration of transmission of the sequence to the least possible portion of a transmission burst. Moreover, the use of 5% of a transmission burst to transmit the training sequence does not impart any particular feature or benefit to the instant invention. The amount of the total transmission burst allocated to the training sequence could be 5% according to a design choice.

Regarding claim 8, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of the claim as applied to claim 1 above.

Regarding claim 9, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of Schrader and McFarland disclose the remaining limitations of the claim as applied to claim 2 above.

Regarding claim 10, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the remaining limitations of the claim as applied to claim 3 above.

Regarding claim 11, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of

Bauder-246, Schrader and McFarland disclose the remaining limitations of the claim as applied to claim 4 above.

Regarding claim 15, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 1 as applied above. Further Bauder-247 discloses that the application is in a mobile terminal (col. 1, lines 15-30).

Regarding claim 16, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further Bauder-247 discloses that the application is in a mobile terminal (col. 1, lines 15-30).

5. Claims 5, 6, 7, 12, 13,and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bauder-247 in view of Bauder-246, Schrader , McFarland, and Khayrallah et al (U.S. Pat. No. 6320919; "Khayrallah" – previously cited).

Regarding claim 5, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 1 as applied above. Bauder-247 in view of Bauder-246, Schrader and McFarland do no not explicitly disclose that the linearization training sequence is transmitted at the start of the frame. However, Khayrallah teaches that training sequences are typically provided as the beginning of a frame of data (col. 1, lines 55-65). It is apparent to one having ordinary skill in the art that providing training sequences at the beginning of a frame permits any of linearization, channel estimation, or gain correction to occur before the data of a frame is processed as suggested by Khayrallah. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the sequence of symbols Bauder-247 in view of Bauder-246, Schrader and McFarland should be provided at the start of a frame

as suggested by Khayrallah because it would permit any of linearization, channel estimation, or gain correction to occur before the data of a frame is processed.

Regarding claim 6, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 1 as applied above. Bauder-247 in view of Bauder-246, Schrader and McFarland do not explicitly disclose that the linearization training sequence is further transmitted during a change of logical channel, a change of frequency and/or a change of power rating of the first equipment. However, Bauder-247 in view of Bauder-246, Schrader, McFarland, and Khayrallah as applied to claim 5 above disclose that the linearization training sequence is transmitted at a start of a frame and Bauder-247 implies that the linearization training occurs directly after "start" of the transmitter (fig. 3, col. 9, lines 35-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the sequence of symbols of Bauder-247 in view of Bauder-246, Schrader, McFarland, and Khayrallah should be transmitted every time there is a change of logical channel, frequency, or power rating of the first equipment because each such instance is one of "re-starting" communication which should coincide with a new frame beginning with the linearization sequence as is implied by the prior art combination and understood by one having ordinary skill in the art.

Regarding claim 7, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 1 as applied above. Further, Khayrallah discloses the use of a sequence of symbols (i.e. containing at least the linearization sequence) at the start of a frame as applied in claim 5 above. Moreover, in the combination of Bauder-

247 in view of Bauder-246, Schrader, Khayrallah, and McFarland, the sequence of symbols that is designed to allow the dynamic control of the transmission power of the mobile terminal first equipment comprises more than N symbols because it contains the linearization sequence of N symbols *and* the automatic gain sequence of additional symbols. Further, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that the N symbols of the linearization training sequence are sent first in the sequence of symbols because adjusting the amplifier in the transmitter of Bauder-247 should occur before the transmission of any automatic gain correction symbols which are to be received at the receiver.

Regarding claim 12, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of Bauder-246, Schrader, McFarland and Khayrallah disclose the remaining limitations of the claim as applied to claim 5 above.

Regarding claim 13, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of Bauder-246, Schrader, McFarland and Khayrallah disclose the remaining limitations of the claim as applied to claim 6 above.

Regarding claim 14, Bauder-247 in view of Bauder-246, Schrader and McFarland disclose the limitations of claim 8 as applied above. Further, Bauder-247 in view of Bauder-246, Schrader, McFarland and Khayrallah disclose the remaining limitations of the claim as applied to claim 7 above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON M. PERILLA whose telephone number is (571)272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason M Perilla/
Primary Examiner, Art Unit 2611
March 18, 2009

/jmp/